



To the stock beer to be "conditioned" and kept at 55 F. there is added, for each barrel, 1 1/2 lbs candy and 1 oz of special yeast to produce fermentation; barrels rolled from time to time, then stored, for some weeks at 30 F. then filtered through blocks of pulped cellulose, or cellulose and asbestos, and bottled.

Beer passes, from barrel, thro pipe, 9, glass vessel, 8, provided with gage, 8a, valve, 7, pipe, 8, hollow trunnion, 5, blocks, 1, of filtering material, thence to space, 4a, and pipes, y and 1, to a bottling machine.

Note that the drawing shows the filtering apparatus capable of being rolled from place to place, and of being tilted upon its trunnions.

For Alcoholic  
 Fermenting  
 Process

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A.D. 1899

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## COMPLETE SPECIFICATION.

## Improvements in the Treatment of Matured Stock Beers.

We, FRANK FAULKNER, of The Laboratory, Bath Row, Edgbaston, Birmingham, in the County of Warwick, Consulting Brewer, JAMES EDWARD JOHNSON JOHNSON, F.I.C., F.C.S., of Crown Works, Marsh Gate Lane, Stratford, in the County of Essex, Manufacturing Chemist, and THE NON-DEPOSIT BEER COMPANY, LIMITED, of the N.D.B. Works, 69A, Bath Row, Edgbaston, Birmingham, aforesaid, do hereby declare the nature of this invention and in what manner the same is to be performed to be particularly described and ascertained in and by the following statement:—

This invention has for its object the re-conditioning of matured stock beers (pale or black) by the aid of carbonic acid gas generated within the same.

For this purpose to the selected stock beer, whilst in cask, are added suitable quantities of saccharine matter, for example sugar candy, and a ferment, for example pure beer yeast of special culture type, the re-pitching corresponding, when using sugar candy and pure beer yeast, to the use of about one and one-half pounds of the former and one ounce of the latter to each barrel, or thirty six gallons of beer. The sugar candy, when fully attenuated or split up, yields sufficient carbonic acid gas to completely re-saturate with such gas the volume of beer specified.

To assist the re-conditioning of the beer thus treated, the casks containing the same, and which should be made specially strong, are stored at a suitable and practically uniform temperature, say about 55° F., and are rolled from time to time, say about three times a day, for a few minutes at a time, so as to urge on the re-conditioning of the beer until the latter again attains the standing gravity of the matured article before treatment, that is to say, until the added saccharine matter is completely attenuated or split up so that no alteration can be detected in the flavour of the treated beer. The beer is then stored for a suitable time, for example one, two or three weeks, at a low temperature, say about 30° F., in order that the beer may become super-saturated with the newly formed carbonic acid gas generated within it. During this storage the beer may remain at rest or be rolled from time to time. The treated beer is finally filtered under pressure, and preferably against a counter-pressure, into casks, jars or other suitable receptacles, the direct pressure and counter-pressure being produced by filtered air or other gas, for example carbonic acid gas, or a mixture of the two.

The filtering and filling operations may advantageously be effected in the manner and by the means which will now be explained by aid of the accompanying drawings wherein

Figs. 1 and 2 show respectively in end elevation and cross section, a filter and Fig. 3 shows in front elevation, a bottle filling machine suitable respectively for filtering and bottling beer treated according to this invention.

The filtering material consists of compressed blocks or plates 1 of pulped

[Price 8d.]



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cellulose, or a mixture of pulped cellulose and asbestos, held in place in an ordinary manner between plates 2 and 3 that are respectively formed with small and large perforations, the combined blocks or plates 1 of filtering material and the supporting plates 2 and 3 therefor, being fixed in place within a suitable casing 4 that is provided with an inlet pipe 5 for the beer to be filtered, and with an outlet pipe 6 for the filtered beer. When a mixture of cellulose and asbestos is used, suitable proportions are 90 parts by weight of cellulose to 10 parts by weight of asbestos, but the proportions can be varied. In the example shown, the inlet pipe 5 is formed by a hollow trunnion that is connected to the central space 4<sup>a</sup> between the plates, and to a pipe 6 that is provided with a valve 7 and a glass vessel 8 having a pressure gauge 8<sup>a</sup> and is connected to a supply pipe 9 for connection to a cask or other vessel from which the beer to be filtered and bottled is forced by gaseous or other pressure. 10 are vent cocks. The outlet pipe 6 is connected by the branched passage 11 with the end compartments 12, 12<sup>a</sup> of the filter case 4 and by a flexible pipe 13 to the lower end of a filling cylinder 14 that is in connection through a cross pipe 15 and common longitudinal pipe 16 with a number of filling nozzles 17 of a bottle filling machine, the said nozzles being each formed with a circumferential opening or openings controlled by a tap or other valve and through which beer can escape and descend along the inner surface of the bottle to be filled, (when the bottling tap is opened) and with a central outlet pipe 18 through which air can escape from the bottle whilst the same is being filled with beer, as in bottling machines of known construction. The several outlet pipes 18 extend to the upper part of the cylinder 14 which is connected to a second cylinder 19 provided at 20 with an outlet normally closed by a valve 21 that is pressed against its seat by a suitably weighted lever 22, both cylinders, which may be of glass, or of metal with gauge glasses, being provided with pressure gauges 23. The movable bottle supports 24 and the means for carrying and operating the same, are of known construction.

With the arrangement described it will be seen that if the supply and delivery pipes 9 and 6 of the filter be connected respectively with a cask containing beer under gaseous pressure and the bottle filling machine, and the valve 7 be opened, then as the air cannot readily escape from the cylinders 14 and 15 of the bottle filling machine, such air will set up a counter-pressure to the direct pressure of the beer passing through the filter, and also to that of the beer entering a bottle that is being filled, whereby the filtering and filling operations are enabled to be carried out in a more advantageous manner than heretofore, the extent of such counter-pressure being capable of ready regulation, to suit requirement, by merely adjusting the position of the weight on the lever 22.

It is to be understood that the above described improved means of filtering and bottling beer is not herein separately claimed as forming part of the present invention as we intend to obtain separate Letters Patent in respect thereof and is only herein referred to in order to explain the best way known to us of filtering and bottling beer treated according to this invention.

Having now particularly described and ascertained the nature of the said invention and in what manner the same is to be performed we declare that what we claim is:—

1. Generating carbonic acid gas in matured stock beer by adding saccharine matter and a ferment to the beer whilst in the cask and storing the beer under conditions to facilitate the attenuation or splitting up of the saccharine matter as set forth for the purpose specified.

2. The herein described method of treating or re-conditioning matured stock beer by adding thereto whilst in the cask, saccharine matter and a ferment, and storing the beer thus treated first at a comparatively warm temperature and agitating it from time to time until the saccharine matter is attenuated or split



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up, and afterwards at a low temperature, and finally filtering it under pressure, substantially as described.

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For the Applicants,

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